TECHNICAL MEMORANDUM

To: Mr. Lucas Lucero
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Arizona State Office
222 N. Central Avenue
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December 21, 2001

From: Suzanne Rhodes
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CC: Ms. Chris Turk
National Park Service
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RE: Site-specific NEPA analysis of the Fort Bowie National Historic Site. El Paso Global Networks Company proposed El Paso, Texas, to Phoenix, Arizona, segment of the El Paso to Los Angeles, California, fiber optic telecommunications system.

At the request of the National Park Service (NPS), Fort Bowie National Historic Site (Fort Bowie NHS), SWCA, Inc., Environmental Consultants has prepared this summary of potential impacts to critical elements of the human environment within the Fort Bowie NHS, as analyzed for the proposed El Paso Global Networks (EPGN) El Paso, Texas, to Los Angeles, California, fiber optic telecommunications system. EPGN proposes to install and operate a fiber optic telecommunications system and ancillary facilities (cable splice vaults, manholes/handholes, Optical-Amplification [OP-AMP] /regeneration stations, and centerline markers) from El Paso, Texas, to Los Angeles, California. Under the National Environmental Policy Act of 1969 (NEPA), an environmental assessment (EA) has been prepared and is currently undergoing public review (BLM EA-AZ-2001-0028, 2001). Although BLM exercises authority only on public lands under the Federal Land Policy and Management Act (FLPMA), the EA evaluates the proposed corridor and associated facilities for the entire route. EPGN is also requesting that the NPS grant a special use permit for the segment of the fiber optic system that traverses Fort Bowie NHS, a distance of approximately 1.23 miles (Figure 1). The fiber optic system would be installed entirely in previously disturbed areas within the existing EPNG 1600 system natural gas pipeline ROW.

The following sections provide analyses of each resource potentially affected for the portion of the

proposed action that would affect lands administered by the NPS. NPS NEPA guidelines and terminology are followed. For all impact topics, the following definitions were applied.

Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.

Direct: An effect that is caused by an action and occurs in the same time and place.

Indirect: An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.

Short-term: An effect that within a short period of time (generally one or two years but no more than five years) would no longer be detectable as the resource is returned to its predisturbance condition or appearance; generally less than 5 years.

Long-term: A change in a resource or its condition that does not return to predisturbance condition or appearance and for all practical purposes is considered permanent.

The predicted intensity of impacts is articulated according to the following criteria:

Negligible: An action that would affect very few individuals of species populations, or affect the existing physical environment within Fort Bowie National Historic Site. The change would be so small or localized that it would have no measurable or perceptible consequence to the populations or natural system function.

Minor: An action that would affect a relatively small number of individuals of species populations, or affect the existing physical environment within Fort Bowie National Historic Site. The change would require considerable scientific effort to measure, be limited to relatively few individuals of the populations, be very localized in area, and have barely perceptible consequences to the populations or natural system function.

Moderate: An action that would cause measurable affects on: (1) a relatively moderate number of individuals within a species population, (2) the existing dynamics between multiple species (e.g. predator-prey, herbivore-forage, vegetation structure-wildlife breeding habitat), (3) a relatively large habitat area or important habitat attributes, or (4) a large area of the natural physical environment within Fort Bowie National Historic Site. A species population, plant and animal communities, habitats, or natural system function might deviate from normal levels under existing conditions, but all species would remain indefinitely viable within the monument.

Major: An action that would have drastic consequences for species population numbers, dynamics between multiple species, habitat area or important habitat attributes, or the existing

physical environment within Fort Bowie National Historic Site. The change would be readily apparent throughout the monument area. A species population, plant and animal communities, habitats, or natural system function would be permanently altered from normal levels under existing conditions, and species would likely be extirpated within the monument.

LAWS, POLICIES, AND REGULATIONS

The fundamental purpose of the National Park System, established be the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgement of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute an impairment. An impact would be more likely to constitute an impairment to the extent it affects a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; (2) key to the natural or cultural integrity of the park or to opportunities for employment of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. A determination on impairment is made in the Environmental Consequences section for each impact topic.

ALTERNATIVES CONSIDERED

Alternative A: Proposed Project

Under this alternative the proposed telecommunications system would be approximately 1,000 miles long and would be placed along existing pipeline and road rights-of-way (ROWs) within four states: Texas, New Mexico, Arizona, and California. The Proposed Project route (project route) would cross states, various counties and cities within those four states, private landowners, and the National Park Service (Fort Bowie NHS) (BLM 2001). EPGN is requesting that the BLM, the federal agency taking the lead on this project, grant a 10-foot-wide permanent ROW within a 25-foot-wide temporary construction easement on public lands within existing El Paso Natural Gas (EPGN) pipeline ROWs and various existing state and county road ROWs. Approximately 1.23 miles of the

project would traverse Fort Bowie NHS within the existing EPGN 1600 system natural gas pipeline ROW. Installation of the telecommunication system would involve plowing within the 1.23 miles of existing ROW within the Fort Bowie NHS boundary. Directional boring will not be utilized. No new ground disturbance would occur under this proposed action.

No-Action Alternative

Under this alternative, the BLM would not grant EPGN ROWs to install and operate a telecommunications system between El Paso, Texas, and Los Angeles, California.

Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that "the environmentally preferable alternative that will promote the national environmental policy as expressed in NEPA's Section 101: (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradations, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety, of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

After careful review of the potential resource impacts of both alternatives the environmentally preferred alternative would be Alternative A (Proposed Action). Alternative A would utilize mitigation measures to reduce impacts to resources including air quality, soils, biological resources (including threatened, endangered, and sensitive species), noxious weeds, cultural resources, transportation and access and visual resources. Alternative A would protect the environment while allowing a range of uses.

Alternative A meets goals 3, and 5 of the National Environmental Policy Act by attaining a wide range of beneficial uses without degrading the environment. It would obtain a balance between resource use and allow a high standard of living by meeting the telecommunications needs of the public. Alternative A also partially realizes goal 4 by preserving the natural and cultural aspects while supporting diversity of use of the natural resources. **Goal 6 would also be partially achieved through the implementation of recontouring and revegetation efforts to assist in returning the impacted areas to a condition equal to or better than their preconstruction states.**

The no action alternative meets goals 1 and 2 of the National Environmental Policy Act by protecting the environment while assuring healthful, productive and aesthetically pleasing

surroundings. **In addition, by maintaining the status quo,** this alternative would partially meet goal 4 by preserving the historic cultural and natural aspects of the environment.

AIR QUALITY

The Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, lead, ozone, sulfur dioxide, and two sizes of particulate matter (Clean Air Act, Section 7 (d) 1 EPA, Region 9: http://www.epa.gov/region09/air/breath96/exec.html). Primary standards are adopted to protect public health, while secondary standards are adopted to protect public welfare. States are required to adopt ambient air quality standards which are at least as stringent as the federal NAAQS; however, state standards may be more stringent.

The Fort Bowie NHS is classified as a Class II airshed. Under the Clean Air Act regulations, Class II areas have increment ceilings on additional pollution over baseline concentrations which allow for moderate development.

Air quality for the entire project area would be degraded only during short-term construction activities, and during limited operation of backup generators at ancillary facilities. During groundbreaking activities for the conduit installation, and clearing, grading, and building of the OP-AMP/regen station, an increase in vehicular traffic and fugitive dust would be expected. The OP-AMP/regen station will be located approximately 1.3 miles northeast of the national historic site boundary. An increase in emissions from construction equipment and vehicles transporting employees and materials to the work site would also occur during the construction phase. However, emission levels of volatile organic compounds (VOC), nitrogen oxides, sulphur dioxide, carbon monoxide, and other emissions from internal combustion engines and PM-10 particulates from vehicular travel on unpaved surfaces would not be expected to exceed any predetermined standards for air quality (BLM 2001). In the maintenance phase, little impact on air quality from fugitive dust is anticipated due to the close proximity of the telecommunications system and the OP-AMP/regen stations to existing highways, requiring minimal travel on unpaved surfaces. As fiber optic cables do not produce any emissions, the telecommunications system itself would not contribute to air pollution. The OP-AMP/regen stations would not affect air quality under normal conditions. In the event of regular power interruptions, backup generators, powered by natural gas or diesel fuel, would provide emergency electrical power. It is estimated that each generator would not be required for more than 100 hours per year. During times of operation, these generators would emit some amounts of the six criteria pollutants; however, emissions would not exceed annual air quality general conformity thresholds (BLM 2001). No mitigation measures for generator use are recommended as no adverse effects would result from their temporary use.

Mitigation

The following mitigation measures would be in place during project construction and/or operation

of the telecommunications system:

- Construction sites would be sprayed with water, when needed, to reduce suspension of dust particles.
- When wind speed exceeds 25 mph, grading activities would cease.
- All portable engines and portable engine-driven equipment would be inspected and maintained pursuant to California's Statewide Portable Equipment Registration Program and other state or local regulations.

Impacts of Alternative A

Impacts to air quality in the Fort Bowie NHS would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation. Impacts would primarily take the form of fugitive dust during construction activities. The Proposed Project would not cause the local air quality to drop below the NAAQS.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to air quality.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

SOILS

The Basin and Range Province incorporating the project area includes plateaus, isolated mountain ranges, intermountain desert basins, and desert plains. Within the Texas, New Mexico, Arizona, and eastern California portions of the proposed route, the terrain is essentially a smooth plain, interrupted by low, narrow mountain ridges of bare rock (BLM 2001).

Soils in the Fort Bowie NHS belong to the Lithic Haplustolls - Lithic Argiustolls - Rock Outcrop Association (BLM 2001). Common rock outcrops in this association are interspersed with shallow and very shallow, well-drained soils formed in the residuum of igneous and sedimentary hills and mountains.

Surface and subsurface soils would be disturbed as a result of project construction activities. Impacts would be limited to the 25-foot-wide temporary construction easement. Surface soils would be impacted during construction and installation of the telecommunications system. Impacts would

mainly consist of soil compaction and surface disturbance by plowing equipment. Although surface texture and particle size may be modified to a finer texture and smaller size, soil composition and type would not be altered.

Subsurface impacts and soil horizons would be disturbed within an approximately 6-inch-wide area within the 10-foot-wide permanent ROW. This would occur where the telecommunications system would be buried by plowing, or a rock saw would be used to trench. Depth of subsurface disturbance would average 48 inches with a maximum of 60 inches. The ripping involved in plowing would reduce soil density by loosening the soil. A rock saw would cut or "grind" a trench through a rock, reducing the rock to granular material and mixing it with soil. Soils would not be removed from the site using these construction techniques and the area would be regraded to its original contour and vegetated where possible, reducing surface impacts.

The impacts on soils would be greater along the project route where plowing would occur. Plowing activities would result in the mixing of soils. Typical top-of-trench width would range from 18 to 36 inches, with the total area of disturbance, including temporary soil storage, being 15 to 20 feet wide. Trenching soil would be stockpiled to the side for later backfill, and the area would be regraded to its original contour and revegetated, if necessary, to reduce surface impacts.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- Disturbed areas of the project route would be recontoured, primarily by grading, to restore the area to its approximate preconstruction contour.
- In steep terrain, erosion control structures such as water bars, diversion channels, and terraces would be constructed to divert water away from the telecommunications system trench and reduce soil erosion along the ROW.
- Where trenching is used, topsoil would be preserved and replaced whenever possible.
- Suitable mulches and other soil stabilizing practices would be used on all regraded and topsoil-enhanced areas to protect soil from wind and water erosion and to improve water absorption.
- During adverse weather conditions, as determined by special use permits or ROW instruments, stop and start orders would be issued to prevent rutting, erosion, or excessive tracking of soil.

Impacts of Alternative A

Potential impacts to soils in the Fort Bowie NHS would be localized within the 25-foot-wide temporary construction ROW. Impacts to soils would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to soils.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

WATER RESOURCES

The project area occurs within arid to semi-arid environments of the Southwest, with limited rainfall and available surface water. The drainages are intermittent or ephemeral, flowing only after localized summer thunderstorms or winter rains.

Water quality would potentially be impacted by the use of heavy machinery on dirt roads and routes, causing rutting, runoff, and possible erosion. Such impacts would be avoided or minimized through implementation of mitigation measures directed towards protecting soils. Many of these mitigation measures are presented in EPGN's Stormwater Pollution Prevention Plan (SWPPP), which is mandated by the EPA in the application for a Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES).

The method of crossing rivers as well as streams, dry washes, draws, and intermittent streams would be determined on a case-by-case basis. For ephemeral and small perennial drainages, trenching through the channel bed would be the preferred method. For larger drainages, the crossing would be either by boring underneath the stream bed or attaching the conduit to an existing bridge structure. With boring under a river, stream, or wetland area, the staging areas would be located at least 25 feet from the bank or edge of the water resource to minimize or prevent impacts on that resource, and would be contained within the 25-foot-wide temporary construction easement. Any impacts of dredge and fill activities on jurisdictional waters of the U.S. (As defined in the federal Clean Water Act and implementing regulations) are regulated by the Army Corps of Engineers under the Clean Water Act Section 404 permitting program. Before commencing any such activities in the vicinity of waters of the U.S., EPGN would acquire the appropriate Section 404 permits. BLM ROW grants for this project would be issued subject to obtaining such permits. The required 404 permit applications have been submitted to the ACOE for all jurisdictional crossings along the proposed route.

Most of the ground water in the project area is very deep and would not be affected by project

construction. Depending on substrate, directional boring would be accompanied by a lubricating slurry made from potable water and bentonite clay, which would be pumped under pressure into the borehole. This type of drilling fluid is commonly used to install drinking water wells and would thus have no adverse impacts on ground water quality (BLM 2001). To avoid slurry escaping from the borehole through cracks in the soil or bedrock (frac-outs), the bores beneath wash and stream crossings would be a minimum of 10 feet below the stream channel. This depth would also protect the cable from damage in the event of catastrophic flood events.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- Implementation of a SWPPP and associated best management practices (BMPs) that would prevent erosion and contain sediments on-site during construction to reduce the potential for increased turbidity or sedimentation of waterbodies, including the installation and maintenance of sediment barriers (e.g., silt fence, sandbags, straw bales) and containment structures (e.g., sediment traps, sediment basins, etc.) between construction sites and drainage features, including streams, gullies, and canals, at all times during construction activities.

- Filtering and/or containment of discharge from trench dewatering to prevent sediment from entering drainage features. Trench dewatering would be filtered through well-vegetated areas which are relatively flat and at least 100 feet from any drainage feature.

- Implementation of a Spill Prevention and Control Plan (SPCP) to ensure protection of surface and ground water resources, such as specific measures for restricting vehicle refueling or maintenance areas to 100 feet from any streambank or wetland, canals, or other drainage features.

Impacts of Alternative A

Potential impacts to water resources in the Fort Bowie NHS would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation. There would be no localized impacts to water resources since there would be no streams or waterbodies crossed within the Fort Bowie NHS.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to water resources. .

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

BIOLOGICAL RESOURCES

Two biological evaluations (BEs) were prepared for consultation with federal and state agencies for the Proposed Project (SWCA 2001). An overview of the biological resources (vegetation and wildlife) within the portion of the project area that traverses Fort Bowie is provided in this section. Federally listed threatened and endangered (T & E) species and special-status species are discussed separately in the next section. The following paragraph describes the vegetation community present along the proposed route, and lists the wildlife species that typically inhabit those communities.

Fort Bowie NHS is located in the northwestern edge and upper elevation range of the Chihuahuan Desert. Habitat types include Chihuahuan desertscrub, semi-arid grassland, and Madrean evergreen woodland. Chihuahuan desertscrub habitats are characterized by creosote bush (*Larrea tridentata*) or velvet mesquite (*Prosopis velutina*), but in some areas tarbush (*Flourensia cernua*) is the dominant shrub species. Grasses are not particularly abundant in the desertscrub habitats, but the diversity of plants, including shrubs, cacti, and forbs, is often relatively high. The desert grassland areas are dominated by tobosa (*Hilaria mutica*), sideoats grama (*Bouteloua curtipendula*), hairy grama (*B. hirsuta*), tanglehead (*Heteropogon contortus*) and a number of other grasses as well as many forbs, soaptree yucca (*Yucca elata*), agave (*Agave* spp.), and widely scattered shrubs. Madrean evergreen woodland supports Mexican piñon (*Pinus cembroides*), juniper *(Juniperus* spp.) and oak (*Quercus* spp.) with yucca, prickly pear cactus, forbs, and shrubs in lower densities. Examples of wildlife species that typically occur within these types of vegetation communities include white-tail deer, mule deer, white-throated woodrat, Merriam's kangaroo rat, grasshopper mouse, pocket gopher, black-tailed jackrabbit, desert cottontail, Montezuma quail, cactus wren, lesser nighthawk, roadrunner, curve-billed thrasher, mourning dove, whiptail lizard, greater earless lizard, western diamondback rattlesnake, and spiny lizard (Brown 1994, Fort Bowie GMP 2001).

The El Paso Natural Gas Company (EPGN) pipeline runs through Fort Bowie NHS roughly parallel to Apache Pass Road. The existing 25 foot pipeline ROW and road are previously disturbed and contain little native vegetation or natural habitat. The proposed project will be allowed to temporarily disturb a 25 foot width of the existing ROW and leave 10 feet of the original 25 as a permanent ROW.

Mitigation

The impacts of this project were assessed assuming the following mitigation measures are in place during project construction and/or operation of the telecommunications system:

- A biological resource monitor will be present during construction activities. This will minimize potential impacts to wildlife along the ROW.

- Existing groundcover such as grasses, leaves, brush, and tree trimmings would be cleared and piled only to the extent necessary. There would be no infringement on existing wildlife or habitat. Disposal of slash and tree limbs would be at the direction of the NPS.

- Trees, shrubs, and cacti on the ROW would be avoided or protected from damage during construction to the extent practicable. Bulldozers and other equipment would maintain their blades in a raised position except at areas designated for clearing, such as OP-AMP/regen stations, manholes, splice boxes, and where necessary to provide level plow surfaces.

- Upon completion of construction activities, the ROW would be revegetated as required by the NPS. A seed mix of native plants would be developed for approval by the NPS and BLM field offices. Periodic inspection of the ROW would be conducted by EPGN, and reclamation efforts would be enhanced where necessary. EPGN would notify park officials and the appropriate BLM field office prior to conducting any reclamation efforts.

Impacts of Alternative A

Approximately 1.23 miles or 3.7 surface acres would be impacted along the proposed route within Fort Bowie NHS. The primary impact on vegetation would be due to project clearing, compaction from construction vehicles, and uprooting due to plowing activities. Such impacts would be minor because the proposed route currently supports little native vegetation due to its previously disturbed state. Impacts would also be short term as recontouring and revegetation efforts would assist in returning the impacted areas to a condition equal to or better than their preconstruction states.

Project construction activities would also disturb or displace animals that burrow into the soil or use grasses and shrubs for nesting and/or foraging. While most of these impacts would be short term, some animals may be harmed or killed during construction activities. The habitat types in the project area are generally abundant, and the proposed project would disturb only a small amount of habitat relative to the amount available locally. Consequently, minor effects on any wildlife species or their habitat are expected.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to biological resources.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort

Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

In preparing documents for this project, biologists compiled information from habitat descriptions, geographical distributions, recovery plans, websites, and pedestrian field surveys to identify species potentially occurring along the proposed route. Five species currently listed by the U.S. Fish and Wildlife Service (USFWS) as either T&E species or as proposed threatened species were identified as potentially occurring or having potentially suitable habitat within the portion of the project area that crosses through Fort Bowie NHS. These species, all classified as endangered, are listed in Table 1. Two Arizona Game and Fish Department state-listed special-status species also potentially occur and/or have suitable habitat within the project areas. These species are listed in Table 2. Impacts to these species would be negligible because the fiber optic cable would be placed along a previously disturbed EPNG pipeline ROW, little potential habitat would be disturbed.

Mitigation

- Mitigation measures listed in the BE designed to reduce or eliminate potential impacts on T&E and state special-status species would be implemented.
- Qualified biologists would be deployed as monitors for T&E and special-status species during construction of the project.
- Seasonal restrictions may be implemented to minimize or avoid impacts on T&E species. Close coordination with the BLM, USFWS, and state wildlife management agencies would be necessary.
- The terms and conditions listed in the USFWS Biological Opinions issued for this Proposed Project shall be implemented.
- Any mortalities to wildlife within the historic site would be reported to the NPS.

Table 1. Federally listed Threatened and Endangered species potentially found within the proposed fiber optic route through Fort Bowie NHS.

Common Name	Scientific Name	Status
Sinaloan jaguarundi	*Herpailurus yaguarondi tolteca*	E
Ocelot	*Leopardus pardalis*	E
Jaguar	*Panthera onca*	E
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E
Northern aplomado falcon	*Falco femoralis septentrionalis*	E

E= Endangered

Table 2. State special-status species potentially found within the Fort Bowie NHS portion of the proposed El Paso, Texas, to Los Angeles, California, fiber optic route.

Common Name	Scientific Name	State/Status
Sprague's pipit	*Anthus spragueii*	AZ/WC
Baird's sparrow	*Ammodramus bairdii*	AZ/WC

WC= Wildlife of Concern (AZ).

Impacts of Alternative A

Potential impacts to TES species would be avoided through implementation of site-specific mitigation measures. Summaries of potentially affected species are provided below.

- ***Sinaloan jaguarundi***. Suitable habitat for this species is present in Arizona along noncontiguous portions of the route in washes and drainages with dense vegetation. There have seen unconfirmed sightings of the jaguarundi in recent years within the Fort Bowie NHS boundaries (Fort Bowie GMP 2001). However, the washes crossed by the proposed route do not contain any perennial water or riparian vegetation within Fort Bowie NHS. No individual jaguarundi or their sign were found in these areas during field surveys. This, in addition to the rarity of the species and its ability to avoid the project area during construction activities, reduces the likelihood of impact to this species to negligible levels.

- ***Ocelot***. This species has been documented in the United States most regularly near the Texas/Mexico border with few sightings in New Mexico and Arizona. Suitable habitat is present in Arizona along noncontiguous portions of the route where the proposed route crosses major water courses (e.g., San Pedro River, Cienega Creek). The washes crossed by the proposed route within Fort Bowie NHS do not contain any perennial water or riparian vegetation. No individuals or their sign were found during field surveys. This, in addition to the rarity of the species and its ability to avoid the project area during construction activities, reduces the likelihood of impact to this species to negligible levels.

- ***Jaguar.*** The jaguar has occasionally been documented to occur in New Mexico and southeastern Arizona, at the northern periphery of its range. Sightings of individuals are very rare and occur infrequently. Most sightings of this species in the U.S. are from Madrean evergreen woodlands, shrub-invaded semidesert grassland, and in riparian areas. No jaguar have been sighted within Fort Bowie NHS; however, one was killed near the site in the 1980s (Fort Bowie GMP 2001). No individuals or their sign were found in areas of potential habitat within the project route during field surveys. This, in addition to the rarity of the species and its ability to avoid the project area during construction activities, reduces the likelihood of impact to this species to negligible levels.

- ***Lesser long-nosed bat***. Columnar cacti and agave flowers form the basis of the diet for this species. The proposed route traverses areas within the foraging range of known lesser long-nosed bat roosts in Arizona. Bat surveys were conducted at Fort Bowie NHS on June 17 through June 19, 2001, by University of Arizona personnel. No lesser long-nosed bats were detected during these surveys (Barbara Reese, pers. comm.). No columnar cacti grow within the boundaries of Fort Bowie. Agave density is variable: some areas have a few scattered agaves, some areas have none, but in no area are agaves common. Limited foraging habitat occurs within the proposed route, with more foraging opportunities directly alongside the route in some locations; however, no suitable roosting habitat is available within the project area. The absence of roosting habitat combined with the nocturnal behavior of the species, the absence of columnar cacti, and the limited number of agave plants within the project area reduces the likelihood of impact to this species to negligible levels.

- ***Northern aplomado falcon***. Suitable habitat for the northern aplomado falcon occurs within the semi-arid grassland communities in Chihuahuan Desert habitat. Northern aplomado falcons have not been recorded in Arizona since before to 1940. No individuals or nests were identified during field surveys of the project area, and the species is able to avoid the project area during construction activities, therefore, impacts to this species would be negligible.

The Spragues's pipit and the Baird's sparrow are both known to winter in the nearby Sulphur Springs Valley. Neither species is afforded any protection under the Endangered Species Act, but they are considered Wildlife of Concern by the Arizona Game and Fish Department. There is potential that they may occur in the Fort Bowie NHS area. Neither of these species was observed during biological surveys of the area. Little grassland habitat would be disturbed by construction activities relative to the amount available adjacent to the project area; therefore, impacts to these species would be negligible.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no

impacts would occur to threatened, endangered, and sensitive species.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

NOXIOUS WEEDS

Under Executive Order 13112, dated February 3, 1999, projects which occur on federal lands or that are federally funded must "Subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive plant species, (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive plant species populations accurately and reliably, (iv) provide for restoration of native plant species and habitat conditions in ecosystems that have been invaded."

Noxious weed management within Arizona is covered by the BLM field offices in the state. Based upon current information, the proposed route and its alternatives do not cross any officially designated Weed Management Areas. The BLM has divided noxious weeds into a number of categories, based on their destructiveness, ability to spread, and/or environmental significance.

Mitigation Measures Built into Project Design

- All disturbed areas shall be reseeded using a weed free native species seed mix to be determined by NPS.
- Weed-free erosion-control materials (i.e., straw bales) would be used.
- All earthmoving and hauling equipment shall be washed and free of noxious weed seeds before entering the NPS-managed lands. No equipment will be washed inside park boundaries.

Any herbicide use would be pre-approved by NPS.

Impacts of Alternative A

The Proposed Project would provide treatment of noxious weed infestations within the project area and would identify and provide up-to-date information on areas of infestations along the route (100-foot-wide survey corridor). Based upon NPS priorities, these identified areas may be treated at a later date.

All areas of noxious weed infestation within the construction and permanent ROW would be

identified. To prevent the spread of noxious weed seeds to uncontaminated areas, all construction and personnel equipment and vehicles would be washed prior to leaving the infested area. EPGN or their subcontractor(s) shall treat identified noxious weed infestations after construction is finished. Prior written approval of any treatment plan would be required before implementation. No herbicides would be applied without NPS approval. Furthermore, all disturbed soils shall be reseeded using a weed-free, native species seed mix determined by the park manager to help prevent the reestablishment of noxious weeds. With these precautions in place, the potential spread of noxious weeds as a result of project activities would be reduced and impacts would be negligible.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to or from noxious weeds.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

CULTURAL RESOURCES

In 1999 and 2000, SWCA conducted cultural resources files searches and field surveys in Cochise, Pima, Pinal, Maricopa, and La Paz Counties, Arizona, for a portion of a proposed fiber-optic line (Tucker 2000) and suitable locations for the associated fiber optic regeneration (regen) stations (Newsome et al. 2000). The project corridor through Fort Bowie NHS was included in these surveys.

Based on the results of the files searches, eighteen cultural resource sites were known to be within one mile of Fort Bowie NHS. Cultural resource inventories of the proposed fiber-optic line and regen locations located six additional sites. Of the total 24 sites, only seven actually extend into the Proposed Project ROW. The 24 sites are summarized in Table 3.

Mitigation

No mitigation measures would be required.

Impacts of Alternative A

The proposed fiber optic cable would be installed within an existing pipeline corridor, thus avoiding impacts to significant cultural resources in Fort Bowie NHS. Of the seven sites that are found in the ROW, only five (sites AZ CC:15:64[ASM], AZ CC:15:65[ASM], AZ CC:15:75[ASM], AZ CC:15:76[ASM], and AZ CC:15:77[ASM]) would sustain minor impacts from the proposed development. However, all five of these sites are properties that are considered not eligible for the

National Register of Historic Places. As such, further consideration of these five sites is not warranted. The two other sites are Fort Bowie National Historic Site itself (AZ CC:15:2[ASM]), which would not be impacted by the proposed project, and a prehistoric artifact scatter (AZ CC:15:78[ASM]) which is at the edge of the ROW and will be avoided. Furthermore, construction of a regen facility east of Fort Bowie NHS would not physically impact any cultural remains nor compromise the visual integrity of the Fort Bowie NHS. Therefore, the Proposed Project would result in negligible effects to cultural resources in the vicinity of the Fort Bowie NHS.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to cultural resources.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

Table 3. Cultural resource sites within one mile of the Fort Bowie National Historic Site.
(*) Sites within Fort Bowie NHS. ( )) Sites within Proposed Project ROW.

Site Number AZ...(ASM)	Description	NRHP Eligibility	Project Impacts	Comments and Recommendations
CC:15:2 *)	Fort Bowie National Historic Site	Listed	Negligible	The proposed fiber optic line would not impact any cultural remains within the site area. No further work is warranted.
CC:15:6 *	Apache Pass, historic ceramics	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:49	Trail and historic artifacts	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:50	Historic burial, 2 rock rings, and 2 bedrock mortars	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:51	Historic artifact scatter with features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:52	Historic house and tent platform	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:53	Tent platform with historic artifact scatter	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:54	Historic dwelling and mining features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:55	Historic mining features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:56	Historic tent platform and artifact scatter	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:57	Historic mine shaft	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:58	Historic mining features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:59	Historic tent platform with associated trash and features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:60	Historic mining features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:61	Historic tent platform with associated mining remains	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:62	Historic mining features	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.
CC:15:64)	Access road for pipeline (1947)	Not eligible	Minor	The site is not eligible for the National Register. No further work is warranted
CC:15:65)	Appears to be access road for pipeline (1947)	Not eligible	Minor	The site is not eligible for the National Register. No further work is warranted
CC:15:75 *)	Old Ft. Bowie Road	Not eligible	Minor	The site is not eligible for the National Register. No further work is warranted
CC:15:76 *)	Bowie–Dos Cabezas road	Not eligible	Minor	The site is not eligible for the National Register. No further work is warranted
CC:15:77)	Double Z Windmill road	Not eligible	Minor	The site is not eligible for the National Register. No further work is warranted
CC:15:78)	Prehistoric artifact scatter with features	Eligible	None	The site would be avoided by the fiber optic line and the area was eliminated from regen placement consideration. No further work is warranted.
CC:15:79	Historic homestead with small prehistoric component	Eligible	None	The site would not be impacted as it is outside of the project ROW. No further work is warranted.

CC:15:80	Historic checkdams, road and trash scatter	Eligible	None	The site would not be impacted as it is outside of the project ROW and the area was eliminated from regen placement consideration. No further work is warranted.

PALEONTOLOGICAL RESOURCES

Due to the dynamic changes that have taken place in this region through time, paleontological resources within southwestern New Mexico and southern and central Arizona are highly variable, and the frequency depends on the time of deposition and the geologic strata in which they are located. Generally, most paleontological resources in this region are found in association with the upland outcrops or the resources are buried beneath several meters of alluvial deposits. Some of these fossils are found near the surface of alluvial deposits after being transported from their original location or being exposed by erosional processes.

While significant paleontological resources exist in southwestern New Mexico and southern and central Arizona, the likelihood of the project encountering these resources is very limited. Very few sections of the proposed route fall within areas that have a high probability of fossil deposits, including that which lies within Fort Bowie NHS. The proposed project area is generally in level alluvial valleys rather than through the bedrock outcrops that would most likely contain fossils. Thus, in most cases, the proposed line route would fall into undetermined potential or low potential categories (http://www.mojavedata.gov/bones) for paleontological resources.

There is no documentation of paleontological resources existing within the Fort Bowie NHS. The geology of the area is comprised primarily of granite and limestone. While the latter type of rock may contain fossil deposits, no significant deposits have been documented from Fort Bowie NHS (Fort Bowie GMP 2001).

Mitigation

No mitigation measures would be required.

LAND USE

The Proposed Project will cross the Fort Bowie NHS within the confines of an existing EPNG pipeline ROW. The cable would be buried underground, and construction would generally last for less than one day and no more than two days in any one location. The project route was specifically chosen to avoid direct impacts on any residences or buildings. All current land use within the Fort Bowie NHS would be protected. The ongoing use of the EPNG pipeline ROW as a natural gas delivery system would not be impacted. Highways, roads, and utility features would be avoided or impacts minimized through use of directional boring or realignment of the route.

The Fort Bowie NHS has many opportunities for a variety of recreational activities. Construction activities will not take place directly in high-use recreation areas. Roads used for public access will remain open to the public during installation of the proposed telecommunication system. Minor

short-term impacts on recreational activities (hiking, exploring, photography, etc.) may occur due to construction taking place along public access roads. The proposed project will not go through or effect the public parking area located along Apache Pass Road.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- EPGN would negotiate with current landowners to determine any individual measures, including technical coordination and realty agreements, that may be needed to mitigate impacts on land use.

- Structures damaged by EPGN, such as terraces, levees, underground drainage systems, irrigation pipelines, canals, culverts, and ditches, would be restored to preconstruction conditions and to the satisfaction of the owner or controlling entity.

- Cuts or breaks in fences or natural barriers used for livestock control would be temporarily fenced to prevent passage of livestock during construction activities. After construction is completed in that area, the original fence or natural barrier would be reestablished to equal or better than preconstruction condition.

- Permittees and other regular users of federally administered lands would be notified in advance of any construction activity that might affect their businesses or operations.

- Gates on established roads on public lands would be left as found or as designated by the BLM authorized officer. Fee and unrestricted public access to and upon the project area would be permitted; however, specific areas designated as "restricted" by the BLM authorized officer would be closed for the protection of the public, wildlife, cultural sites, livestock, or facilities under construction within the ROW.

- Survey monuments found within the project area would be protected. If any disturbance occurs, EPGN would report the incident to the authorized officer and the respective installing authority, if known, and follow appropriate procedures to restore the monument.

Impacts of Alternative A

Potential impacts to land use in the Fort Bowie NHS would be negligible and short term, not lasting

more than one or two days during conduit and/or cable installation within the ROW. Impacts would be localized and limited to the 25-foot-wide temporary construction ROW. Impacts on recreational activities may include increased noise resulting from construction work and temporarily restricted access to the project area.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to land use.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

SPECIAL MANAGEMENT AREAS

Special Management Areas (SMAs) are designated by federal authority to protect lands that possess unique or special values or qualities. The responsible agencies generally prepare Resource Management Plans (RMPs) or equivalents (depending on the managing agency), which provide direction for the protection of SMAs. A national historic site or landmark is one type of SMA. These sites typically contain a single historical feature of national historic importance and are usually managed by the NPS. Under the Historic Sites Act of 1935, a number of historic sites were established by Secretaries of the Interior, but most have been authorized by acts of Congress. Fort Bowie NHS (managed by NPS, Chiricahua National Monument) in Arizona is the only national historic site within or adjacent to the project area.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- Implementation of pretreatment, preventative, revegetation measures in and near Fort Bowie NHS, as approved by the NPS (i.e., the Superintendent of Chiricahua National Monument).

- Additional mitigation measures would be implemented within and/or near the other impacted SMAs as deemed necessary by the appropriate managing agency.

Impacts of Alternative A

Potential impacts to the SMA would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation within the ROW. Impacts would be localized and

limited to the 25-foot-wide temporary construction ROW. Visual impacts that would potentially affect the viewshed of the SMA are discussed in the visual resources section.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to special management areas.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

TRANSPORTATION AND ACCESS

The Proposed Project would be limited to an existing EPNG ROW through the Fort Bowie NHS. Construction-related traffic or delays would generally last for less than one day and no more than two days in any one location. During installation, traffic may need to be controlled to accommodate construction activities. Such impacts would be minor along the majority of the proposed route because it is located in rural areas.

Road closures are not expected since conventional boring techniques would be used to place the telecommunications system underneath existing roads. Construction of the Proposed Project may result in temporary damage to streets and sidewalks resulting from construction activities and the movement of heavy machinery. These impacts and all traffic-related impacts would be mitigated through the measures listed below. Implementation of these measures would prevent or minimize any adverse impacts on traffic and access.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- Construction-related traffic would be restricted to routes approved by the regulating agencies. Temporary roads and access areas used by EPGN would be on private property and would be rehabilitated when construction activities are complete, as approved by the appropriate local management agency.

- Where possible, existing ROWs or easements would be used as access roads during the construction period. All other access would be from private properties. No maintenance roads along the telecommunications system route would be permitted, unless expressly authorized.

- If deemed necessary, off-road vehicular use of the ROW in non-road areas would be controlled by physical barriers or other reasonable means of vehicle control.

- All damaged streets and sidewalks would be repaired to the permit requirements of the governing agency, or otherwise to an equal or better condition.

- Local jurisdiction permits for temporary closures of intersecting streets and alleys and public and private entrances would be acquired. Provisions would be made for the passage of emergency vehicles.

- If existing traffic control at an intersection becomes necessary, the contractor would submit a traffic control plan to the appropriate jurisdiction.

- The contractor would provide signs, flags, and flaggers as required by the Manual on Uniform Traffic Control Devices for Streets and Highways (U.S. Federal Highway Administration 1988) and applicable Department of Transportation standards in the four respective states.

Impacts of Alternative A

Potential impacts on transportation and road access would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation within the ROW. Impacts would be localized and limited to the 25-foot-wide temporary construction ROW.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to transportation.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

SOCIOECONOMICS

Only five people live within the Fort Bowie NHS, two NPS employees and three family members (NPS Ranger at Fort Bowie NHS, pers. comm.). The project developers plan to subcontract with a fiber optic construction company out of Austin, Texas, to construct the telecommunications system

and build the ancillary facilities, no new jobs would be created within the Fort Bowie NHS. Construction crews would be in the area for a number of weeks as they work their way across Arizona. A very small, short-term, indirect impact on the socioeconomic condition of the project area would be the increased revenues resulting from the sale of local goods and services, such as food and lodging, to the project construction crew(s).

Mitigation

No mitigation measures have been identified.

Impacts of Alternative A

Potential impacts to the socioeconomics of the Fort Bowie NHS would be negligible and short term, not lasting more than one or two days during conduit and/or cable installation within the ROW. No decrease in tourism is expected as a result of the Proposed Project.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to the socioeconomics of the Fort Bowie NHS.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

ENVIRONMENTAL JUSTICE AND THE PROTECTION OF CHILDREN

Executive Order 12898 (Environmental Justice), dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income communities. Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks) requires that Proposed Projects identify and assess the environmental health risks and safety risks that may disproportionately affect children.

The proposed route would be located within an established ROW of a transportation and utility corridor, and the fiber optic cables are inaccessible (buried) to humans, and release no emissions. The nearest community to the Fort Bowie NHS is the Town of Bowie about 13 miles to the north. No minority or low-income communities are present within the Fort Bowie NHS. No health or safety risk to children (resident or visitor) exists because of precautions detailed in the plan of development and the benign nature of the telecommunications system.

Mitigation

No mitigation measures have been identified.

Impacts of Alternative A

The Proposed Project will have negligible impacts on minority and low-income communities or children in the Fort Bowie NHS area.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur associated with environmental justice or present any health and safety risks to children within the project area.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

HAZARDOUS AND SOLID WASTE

No known hazardous materials or solid waste disposal sites are known to occur within the ROW through the Fort Bowie NHS; thus, hazardous materials or solid waste would not be affected under this alternative, nor would they present any environmental concerns.

The Proposed Project would require the short-term use, storage, transportation, and/or handling of small quantities of hazardous materials, including equipment fuels and lubricants, asphalt, concrete, cable lubricants, and bentonite clay used for boring. These and other hazardous materials would be stored and handled in accordance with state and federal regulations to avoid adverse impacts. A Spill Prevention Control Plan (SPCP) would be implemented to minimize the potential for a spill of hazardous substances; to contain any spills to the smallest area possible; and to protect the environment, especially sensitive areas such as streams and wetlands.

There would be 1 OP-AMP/regen station located approximately 1.3 miles outside the Fort Bowie NHS which may have a 1,000-gallon-capacity storage tank for diesel fuel to run backup generators in cases of power outages. EPGN would obtain all necessary permits for the storage of fuel at the OP-AMP/regen station and follow appropriate procedures for its containment.

Mitigation

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- A spill prevention and control plan (SPCP) which describes measures the

Contractor must implement to prevent, control, and minimize impacts from a spill of fuels or other hazardous substances during construction of the Proposed Project would be implemented.

- If unexpected hazardous waste sites are encountered, the appropriate procedures would be followed that would address contaminant management and health and safety issues.

- Spills of hazardous materials and unexpected previous hazardous waste sites would be reported to the NPS.

Impacts of Alternative A

Risk of potential impacts as a result of hazardous and solid waste spills in the Fort Bowie NHS would be negligible and short-term, not lasting more than one or two days during conduit and/or cable installation within the ROW. Impacts would be localized within the 25-foot-wide temporary construction ROW.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would be no possibility of hazardous materials spills or leakage from the construction of the telecommunications system.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

VISUAL RESOURCES

Because of the potential to affect the visual qualities of Apache Pass and the Fort Bowie NHS, a study of the viewshed from 3 points within the NHS was conducted prior to the selection of an OP-AMP/regen station location. The objective of this study was to determine if a structure up to 8000 sq. ft. in area and up to 16 feet tall would be visible to an observer on the ground at 3 vantage points located at the center and at both ends of the National Historic Site. Digital elevation model data (DEM) was employed to project a viewshed from the 3 points. The analysis assumed the 8000 sq. ft. structure would be a square 30m on a side. The nature of the available DEM data was limited to a resolution of 30m per pixel, so each structure only covered a single pixel. Each pixel representing a potential regen facility was manually raised in elevation by 6 meters, to simulate a structure 16 feet tall. Each vantage point in the analysis was set assuming a camera 2m off the ground, to simulate a human's eye level. The assumed camera elevation was raised another 10m and the resulting viewshed did not have a noticeable effect in this hilly terrain. Consequently, none of the proposed

site options for the OP-AMP/regen station fell within the viewshed of the Fort Bowie NHS.

The following mitigation measures would be in place during project construction and/or operation of the telecommunications system:

- Placement, structure, and color of the OP-AMP/regen station would be chosen to reduce impacts on viewsheds, with topographic features and vegetation used to screen the structure from view to the extent possible.

- Centerline markers design would be modified to minimize visual impacts in sensitive viewsheds.

- BLM will approve designs on public lands under the PA to mitigate potential impacts to historic resources.

Impacts of Alternative A

Short-term impacts to visual resources within the Fort Bowie NHS will be negligible since they would be localized within the EPNG ROW and will only be during the construction phase, lasting no more than one or two days during conduit and/or cable installation. Long-term impacts would be minor since they would consist of centerline markers and be localized within the ROW.

Long-term impacts to visual resources outside the boundaries of the Fort Bowie NHS would be minor in the form of an OP-AMP/regen station which would be located approximately 1.3 miles outside the NHS boundary. The visual impact would be localized to a small portion of Apache Pass Road where the station would be visible. Mitigation measures would allow the station to blend in with the surrounding viewshed.

Impacts of the No-Action Alternative

Under this alternative, conditions within the proposed project area would remain as is, and no impacts would occur to visual resources.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Fort Bowie NHS; (2) key to the natural or cultural integrity of the park or to the opportunities for enjoyment of the park; or (3) identified as a goal in relevant National Park Service planning documents, there would be no impairment of the park's resources or values under either alternative.

CUMULATIVE IMPACTS

Cumulative impacts are the inclusive effects of all actions in the past, the present, and the foreseeable future upon a resource or area, regardless of what agency (federal or non-federal) or

person undertakes such actions. The impacts can be individually small but collectively significant over a period of time. The existing conditions within the project area; the potential impacts of the Proposed Project and alternative actions; and potential, reasonable foreseeable impacts resulting from activities within the project area in the future are the focus of this cumulative impacts analysis. Since the majority of the project's potential impacts would not last more than one or two days during conduit and/or cable installation, contributions to cumulative impacts would be minimal.

The proposed action best realizes the full range of national environmental policy goals as stated in §101 of the National Environmental Policy Act for all resources discussed within the current document. Mitigation measures would be utilized to reduce impacts to resources including air quality, soils, biological resources, noxious weeds, cultural resources, transportation and access, and visual resources. In doing so, the proposed action meets goals 3 and 5 by attaining the widest range of beneficial uses of the environment without degradations or risk to health or safety; and achieving a balance between population and resource use which will permit high standards of living. Goal 4 is partially realized by preserving the natural and cultural aspects while supporting diversity of use of the natural resources. Goal 6 would also be partially achieved through the implementation of recontouring and revegetation efforts to assist in returning the impacted areas to a condition equal to or better than their preconstruction states.

The proposed route is located entirely within existing EPNG ROWs. Existing features within the area include dirt roads and buried natural gas and petroleum pipelines. Construction of these facilities in the past has disturbed the project area by compacting/mixing soils, clearing/uprooting vegetation, and disturbing cultural and paleontological resources. Past and ongoing maintenance occurs along the pipeline ROWs, and the pipeline road is used by the NPS as the handicapped access road to the historic site. These activities have prevented recovery of vegetation along much of the route. However, none of the effects of the proposed project would rise to the level of impairment.

Construction of the proposed telecommunications system, specifically plowing, may add to past adverse impacts on resources in the project area. Mitigation measures such as revegetation, however, would hasten the recovery of the project area, potentially bringing some sections of the route to better than preconstruction conditions in a relatively short period. Plowing activities would add to past soil disturbance, but would be limited to areas that have undergone previous soil disturbance. Additional impacts on the existing state of cultural and paleontological resources would be minimized through the implementation of mitigation measures. Current vehicular use continues to impact the project area's soils and biological resources.

Since the telecommunications system would be buried throughout Fort Bowie NHS, the only foreseeable future impacts would result from routine maintenance and repairs. Vehicle use of the permanent 10-foot-wide ROW will continue for maintenance and repair, contributing to the cumulative effects in the form of soil compaction, disturbance of wildlife, and prevention of vegetation from becoming established. The ROW within Fort Bowie NHS will provide access to the existing EPNG pipeline and the proposed telecommunications system and therefore would only be used for periodic maintenance and infrequent repair of those two utilities.

The EPNG pipeline was chosen with the understanding that EPNG does not plan to expand or modify the pipeline in the foreseeable future. There is a possibility that roads or other utilities within the project area could be expanded in the future, at the discretion of the agencies or companies controlling them. If this were to happen, these new projects would subject to approval of the NPS.

REFERENCES

Bureau of Land Management 2001. Environmental Assessment Volume 1. El Paso Global Networks Company El Paso to Phoenix, Phoenix to Los Angeles, Proposed Fiber Optic Telecommunications System. SWCA, Inc., Environmental Consultants Report EA-AZ-2001-0028. Flagstaff, Arizona.

Brown, D.E. (ed.) 1994. Biotic Communities: Southwestern United States and northwestern Mexico. University of Utah Press, Salt Lake City, Utah.

Newsome, D.K, D.B. Tucker, and M.C. Thurtle. 2000. The El Paso to Los Angeles Fiber Optic Cable Project: Cultural Resources Survey of the Proposed Regeneration Stations Associated with the Arizona Segment. Addendum to A Cultural Resources Survey of the Arizona Segment of a Linear Right-of-way across Cochise, Pima, Pinal, Maricopa, and La Paz Counties, Arizona, edited by David B. Tucker. SWCA Cultural Resources Report No. 00-178B. Flagstaff.

Tucker, D.B. (ed.) 2000. The El Paso to Los Angeles Fiber Optic Cable Project: A Cultural Resources Survey of the Arizona Segment of a Linear Right-of-way across Cochise, Pima, Pinal, Maricopa, and La Paz Counties, Arizona. SWCA Cultural Resources Report No. 00-178. Tucson.

SWCA, Inc., Environmental Consultants. 2001. Biological Evaluation of the Proposed El Paso to Phoenix Segment of the El Paso Global Networks Company's El Paso to Los Angeles Fiber Optic Cable. SWCA Inc., Environmental Consultants, Flagstaff, Arizona.

United States Department of the Interior, National Park Service, Fort Bowie National Historic Site. 2001. Final Environmental Impact Statement, General Management Plan, Fort Bowie National Historic Site, Arizona.